EXHIBIT S

UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF TEXAS

MARSHALL DIVISION

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NETLIST, INC.,	)	
Plaintiff.	)	
vs.	)	Case No.
MICRON TECHNOLOGY, INC.;	)	2:22-cv-203-JRG-RSP
MICRON SEMICONDUCTOR	)	
PRODUCTS, INC.; MICRON	)	
TECHNOLOGY TEXAS LLC,	)	
Defendants.	)	
_____	)	

VIDEOTAPED DEPOSITION OF HAROLD STONE, Ph.D.

REMOTE PROCEEDINGS

MONDAY, JUNE 26, 2023

STENOGRAPHICALLY REPORTED BY:

ANDREA M. IGNACIO, CSR, RPR, CRR, CCRR, CLR ~ CSR

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PAGES 1 - 208

you what's happening. Look at Figure 2.20, page 79. 13:39
Okay. On this page, a wave is sent from the left 13:39
where there -- you see the Z0, and it goes out to 13:39
where there's a junction. At the junction, it's 13:39
reflected back, and part of the wave goes forward 13:39
straight; part of it goes to the left. That's what 13:40
you're dealing with with physics. 13:40
And that happens when you're connected to the 13:40
die, regardless of what happens on the die, whether 13:40
there is a port array connected to it or not. 13:40
So what happens is that the wave propagates 13:40
on the die along the stub or to the port array, and it 13:40
bounces back again. So those waves are going back and 13:40
forth and back and forth, and that's what causes the 13:40
noise that you saw in the earlier figure. 13:40
Let me go back to 2.19. Do you see that 13:40
noise there? Each bump or change is a result of a 13:40
reflection, and the reflections come from the port 13:40
arrays, the data arrays on the ports. They also come 13:40
from the stubs if they don't have a data port 13:40
connected, and they come from the points where there's 13:40
a branch. 13:41
So changing things by removing or adding 13:41
devices only changes the noise, unless you don't have 13:41
a multi -- unless there are no stubs or no drivers. 13:41

Then you -- then you can get a predictable wave. And that has -- that even has reflections, but it looks different. 13:41

So that's my testimony. 13:41

Q Okay. Let me see if I understand something. 13:41

Is it your testimony that the connection between a TSV and a stub is electrical communication? 13:41

A Yeah. This demonstrates it, because the wave travels on that. 13:41

Q Okay. What does the word "electrical communication" mean to you? 13:41

A Electrical connection. That's -- I got that from the patent. I can show you where he says that. 13:41

Q Okay. Show me. 13:41

A Okay. The patent -- the -- is what exhibit? 13:41

Q Exhibit 9, sir. 13:42

A Okay. I'll open the Exhibit 9. 13:42

So I have the '060 patent up. I'll -- I will find that reference that says that it connects -- makes the association between electrical communication and electrical connection. 13:42

I would like you to look at column 17. 13:43

Q Okay. I'm there. 13:43

A I'm looking at line 65. Line 65 reads: 13:43

"Forming the electrical connections places 13:43

the die interconnects in" -- "communication with the respective drivers." 13:43 13:44

Okay. Now, let's see. There may be additional I would like to look at. Now, continuing on from that point, it says: 13:44 13:44 13:44 13:44

"In some embodiments, forming the electrical connections can comprise forming electrical connections between the die interconnects and a data conduit." 13:44 13:44 13:44 13:44

Okay. 13:44

Q I'm sorry to interrupt, but can I ask a clarifying question? 13:44 13:44

A And see, that -- that -- well, actually, that's not so relevant. It's the previous sentence that I read: 13:44 13:44 13:44

"Forming the electrical connections places the die interconnects in electrical communication with the respective drivers." 13:44 13:44 13:44

So what we've done is we -- if you connect a die interconnect to a -- one of the levels in the figure, you now are connecting to some conductor. That conductor will carry a wave when you -- when you drive it. It has capacitance. It has a load. 13:44 13:45 13:45 13:45 13:45

And whether or not that conductor is -- is attached to a data port, you will see the wave go down 13:45 13:45

that conductor. At the end, it will bounce -- bounce back, and you'll see that as noise. Moreover, the capacitance on the conductor will load the driver. 13:45

So in every way, forming the electrical connection and placing this piece of a -- of a metal on the -- on an array, it will form to an electrical communication. That's what you'll get. Electrical connection is electrical communication in this sense. 13:45

Q Okay. But can I ask a clarifying question? 13:46

So on line 65, column 17, it says: 13:46

"Forming the electrical connection places the die interconnects in electrical communication with the respective drivers." 13:46

Right? 13:46

That's talking about the drivers on the control die; right? 13:46

A That's correct. 13:46

Q Okay. So it's not talking about electrical communication with the array dies; right? 13:46

A No. I disagree. 13:46

Q Why? 13:46

A You -- you will understand that the VIA is now connected to the -- to the array die, because there may be metal there. There may be a metal -- a metal pathway. 13:46

Q I understand. 13:46

But you're saying that this specific 13:46

disclosure that equates electrical connection with 13:46

electrical communication discusses array dies. 13:46

And I'm pointing out to you that it 13:46

specifically says drivers, and these are drivers in 13:46

the control die; right? 13:47

A Yeah, but that's fine. The driver is in 13:47

communication with whatever the -- the VIA is 13:47

connected to on that die. 13:47

Q Does the passage mention electrical 13:47

communication with array dies? 13:47

MR. RUECKHEIM: Object to the form. 13:47

THE WITNESS: Does the -- it just -- it just 13:47

did. That's what it says. 13:47

MR. TEZYAN: Q. Where does it say "array 13:47

die" in this paragraph, sir? 13:47

A Just a moment. 13:47

Okay. There is a reference to this in 13:48

column 8 at line 57. 13:48

Q And I don't mean to cut you off, sir, but the 13:48

question was about paragraph -- the paragraph starting 13:48

on line 60 of column 17. 13:48

And the question was: Where in that 13:48

paragraph that you claim provides support for your 13:48

but long answer, is it your testimony that the driver size doesn't depend on how many transistors are actively being used? 15:47 15:48 15:48

A The driver size in this patent is taught to be the area of the driver or the physical dimensions of the driver. And so it does not depend on the number of transistors that are actually being used. 15:48 15:48 15:48 15:48

Q Okay. So if only two of the ten transistors are used to drive a load, is the physical size of the driver determined by the ten transistors or the two transistors? 15:48 15:48 15:48 15:48

A Are you saying that you'll never use transistors? Is that your assumption? 15:48 15:48

Q No. 15:48

I'm just saying for purposes of my hypothetical, right, you have a driver that's composed of ten transistors; right? 15:48 15:48 15:48

A I understand. 15:48

Q Okay. And for the particular load that's on this driver, you're using two of the ten transistors for driving. 15:48 15:49 15:49

Does that make sense? 15:49

A That makes sense. 15:49

Q Okay. So if only two of the ten transistors are used to drive a load, is the physical size of the 15:49 15:49 15:49

driver determined by the ten transistors or the two transistors? 15:49

A I asked a question: Do you ever turn on all ten transistors? 15:49

Q You could. But in this situation, you're just using two. 15:49

A I think you answered my question. If you can turn on all ten, the driver size is related to the load that you can drive. And if you're going to drive ten transistors, you have to have enough area to dissipate the power they generate. And once you have that area, even if you only use two, you've got the area, because you're committed to the area for the ten. 15:49

Q Okay. So the answer to my question is that if you have a driver that's composed of ten transistors, regardless of whether you're driving two or ten of them, the driver size is ten transistors? 15:49

A No. The driver size is the physical dimension of the driver. 15:50

Q Okay. Sorry. I withdraw the question. 15:50

So let me just ask the original question again: If only two of the ten transistors are used to drive a load, is the physical size of the driver determined by the ten transistors? 15:50

A I don't know exactly, but the answer is it could be. 15:50

Q Okay. When would it not be determined by those ten transistors? 15:50

A Ask your question again, because I think I misunderstood it. 15:50

Q Sure. 15:50

The -- the question is -- and I think I know the answer, based on your testimony, but I just want to make sure we're absolutely clear. 15:50

So if only two of the ten transistors are used to drive a load, is the physical size of the drive -- the driver determined by ten transistors or two transistors? 15:50

A My answer is going to be determined by the two transistors, because the size of the driver has to be able to dissipate the power of whatever is in there. And if those two transistors are driving like mad, and that would -- might be the case, then you have to make enough area to dissipate the heat. 15:51

You just told me that you're never going to drive the other eight, if I understand the hypothesis. 15:51

Q No. 15:51

So -- 15:51

A Okay. 15:51

CERTIFICATE OF STENOGRAPHIC REPORTER

I, ANDREA M. IGNACIO, hereby certify that the witness in the foregoing remote deposition was by me sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled cause;

That said remote deposition was taken in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of the said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

That before completion of the deposition, review of the transcript [ ] was [x] was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

Dated: June 27, 2023

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